Moto2™

EUROPEAN CHAMPIONSHIP

2015

FIM CEV REPSOL
MOTO 2 ™ EUROPEAN CHAMPIONSHIP
SUPERSTOCK 600 TECHNICAL RULES

4.6 SUPERSTOCK 600 TECHNICAL SPECIFICATIONS

The following rules are intended to permit limited changes to the homologated motorcycle in the interests of safety and improved competition between various motorcycle concepts.

EVERYTHING THAT IS NOT AUTHORISED AND PRESCRIBED IN THIS RULE IS STRICTLY FORBIDDEN

If a change to a part or system is not specifically allowed in any of the following articles, then it is forbidden

Superstock 600 motorcycles require an FIM homologation. All motorcycles must comply in every respect with all the requirements for Road Racing as specified in these Regulations, unless they are already equipped as such on the homologated model.

The appearance from both front, rear and the profile of Superstock 600 motorcycles must (except when otherwise stated) conform to the homologated shape (as originally produced by the manufacturer). The appearance of the exhaust system is excluded from this rule.

4.6.1 Motorcycle specifications

All parts and systems not specifically mentioned in the following articles must remain as originally produced by the manufacturer for the homologated motorcycle

4.6.2 Balancing various motorcycle concepts

In order to equalize the performance of motorcycles with different engine configurations, changes in the minimum weight may be applied according to their respective racing performances. The decision about applying a handicap system to a respective class is taken by the FIM CEV Commission at any time.

The application of the handicap will follow the system like described in 2.4.2.1 of the Superbike regulation but will be adapted to this class.

4.6.3 Displacement capacities

The following engine configurations comprise the Superstock 600 class:

Over 400 cc up to 600 cc 4-stroke 4 cylinders

Over 600 cc up to 675 cc 4-stroke 3 cylinders

Over 600 cc up to 750 cc 4-stroke 2 cylinders

The displacement capacity, bore and stroke (new), must remain at the

homologated size.

4.6.4 Minimum Weights

The minimum weight for each model is calculated by FIM by determining the "dry weight" of the homologated motorcycle.

The 'dry' weight of a homologated motorcycle is defined as the total weight of the empty motorcycle as produced by the manufacturer (after removal of fuel, vehicle number plate, tools and main stand and side stand when fitted but with oil and radiator liquid at prescribed level). To confirm the 'dry' weight a minimum of three (3) motorcycles are weighed and compared. The result will be rounded off to the nearest digit.

The minimum weight for each model will be calculated by reducing the dry weight" of the motorcycle in 12 kg.

At any time of the event, the weight of the whole machine (including the tank and its contents) must not be lower than the minimum weight.

There is no tolerance on this minimum weight.

During the final technical inspection at the end of the race, the selected motorcycles will be weighed in the condition they finished the race, and the established weight limit must be met in this condition. Nothing may be added to the motorcycle. This includes all fluids.

During the practice and qualifying sessions, riders may be asked to submit their motorcycle to a weight control. In all cases the rider must comply with this request.

The use of ballast is allowed to stay over the minimum weight limit and may be required due to the handicap system. The use of ballast and weight handicap must be declared to the FIM CEV Technical Director at the preliminary checks.

4.6.5 Number Plate Colours

The background colours and figures (numbers) for Superstock 600 are yellow background with black numbers:

The sizes for all the front numbers are:	Minimum height:	**140** mm
	Minimum width:	80 mm
	Minimum stroke:	**20** mm
	Minimum space between numbers	10 mm

The size for all the side numbers is:	Minimum height:	120 mm
	Minimum width:	**70** mm
	Minimum stroke:	25 mm
	Minimum space between numbers	10 mm

The allocated number (& plate) for the rider must be affixed on the machine as follows:

- once on the front, either in the centre of the fairing or slightly off to one side. The number must be centred on the white background with no advertising within 25mm in all directions.
- once on each side of the motorcycle. Alternatively, once across the top of the rear seat section with the top of the number towards the rider. The rear and side numbers are optional. The preferred location for the numbers on each side of the motorcycle is on the lower rear portion of the main fairing near the bottom. The number must be centred on the white background.

In case of a dispute concerning the legibility of numbers, the decision of the FIM CEV Technical Director will be final.

4.6.6 Fuel

All engines must function on normal unleaded fuel with a maximum lead content of 0.005 g/l (unleaded) and a maximum MON of 90 (see Art. 2.10.1 for full specification)

Only fuel **of the current year** from the appointed fuel supplier is permitted. This fuel will conform to the FIM Grand Prix specification. Use of this fuel without any addition or alteration is mandatory during all event (free practices, qualifying practices, warm-up and races).

4.6.7 Tyres

Only tyres from the official tyre supplier may be used in the Moto2™ FIM CEV and each team must sign a contract.

The tyre specifications available at each event will be determined by the tyre supplier. Only homologated tyres in each event are permitted.

The maximum number of rear tyres allowed to use during the qualifying practice are THREE (3).

During the preliminary technical inspection the teams will be delivered the adhesive stickers used for marking the tyres. Each team will be responsible of marking their tyres.

The Technical Stewards may perform random controls during the qualifying practices. If the riders are shown a red flag during the practice, the Permanent Race Direction is allowed to authorize the use of a supplementary tyre. All checked tyres must be easily identifiable with a colour marking or a numerical system.

In case of a technical problem, the FIM CEV Technical Director will take a decision about the problem**.**

4.6.8 Engine

4.6.8.1 Fuel Injection System

a. The original homologated fuel injection system must be used without any modification.
b. The fuel injectors must be stock and unaltered from the original specification and manufacture.
c. Bell mouths must remain as originally produced by the manufacturer for the homologated motorcycle.
d. Butterfly valves cannot be changed or modified.
e. Variable intake tract devices cannot be added if they are not present on the homologated motorcycle and they must remain identical and operate in the same way as the homologated system. All the parts of the variable intake tract device must remain exactly as homologated.
f. Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.
g. Electronically controlled throttle valves, known as ‘ride-by-wire’, may be only used if the homologated model is equipped with the same system. Software may be modified but all the safety systems and procedures designed by the original manufacturer must be maintained.

4.6.8.2 Cylinder Head

a. No modifications are allowed.
b. No material may be added or removed from the cylinder head.
c. The gaskets may be changed.
d. The valves, valve seats, guides, springs, tappets, oil seals, shims, cotter valve**, rocker arms,** spring base and spring retainers must be as originally produced by the manufacturer for the homologated motorcycle.
e. Only normal maintenance interventions as prescribed by the Manufacturer in the service manual of the motorcycle are authorized.

f. Valve spring shims are not allowed.

4.6.8.3 Camshaft

a. No modifications are allowed.

b. At the technical checks: for direct cam drive systems, the cam lobe lift is measured; for non direct cam drive systems (i.e. with rocker arms), the valve lift is measured.

4.6.8.4 Cam sprockets or Gears

a. Cam Sprockets may be slotted to allow the adjustment of cam timing.
b. Pressed on cam sprockets may be replaced with an adjustable boss and cam sprocket.
c. The cam chain must remain as homologated.

4.6.8.5 Cylinders

No modifications are allowed.

4.6.8.6 Pistons

No modifications are allowed (including polishing and lightening).

4.6.8.7 Piston rings

No modifications are allowed.

4.6.8.8 Piston pins and Clips

No modifications are allowed.

4.6.8.9 Connecting rods

No modifications are allowed (including polishing and lightening).

4.6.8.10 Crankshaft

No modifications are allowed (including polishing and lightening).

4.6.8.11 Crankcase and all other Engine Cases

a. Crankcases must remain as homologated. No modifications are allowed (including painting, polishing and lightening).
b. It is not allowed to add a pump used to create a vacuum in the crankcase. If a vacuum pump is installed on the homologated motorcycle then it may be used only as homologated.

4.6.8.11.1 Lateral covers and protection

a. Lateral (side) covers may be altered, modified or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of same or higher specific weight and the total weight of the cover must not be less than the original one.
b. All lateral covers/engine cases containing oil and which could be in contact with the ground during a crash, must be protected by a second cover made from metal, such as aluminium alloy, stainless steel, steel or titanium, composite covers are not permitted.
c. **The secondary cover must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface.**
d. Plates or crash bars made from aluminium or steel also are permitted in addition to these covers. All of these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.
e. FIM approved covers will be permitted without regard of the material **or its dimensions**.
f. These covers must be fixed properly and securely **with a minimum of three (3)** case cover screws that also mount the original covers/engine cases to the crankcases.
g. The FIM CEV Technical Director has the right to **refuse** any cover **not satisfying this safety purpose.**

4.6.8.12 Transmission / Gearbox

a. No modifications are allowed.
b. Quick-shift systems are allowed (including wire and potentiometer)
c. Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.
d. The sprocket cover may be modified or eliminated.
e. Chain guard as long as it is not incorporated in the rear fender may be removed.

4.6.8.13 Clutch

a. No modifications are allowed.
b. Only friction and drive discs may be changed, but their number must remain as original.
c. Clutch springs may be changed.

4.6.8.14 Oil pumps and Oil lines

a. No pump modifications are allowed.

b. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or threaded connectors.

4.6.8.15 Radiator, cooling system and oil coolers

a. The only liquid engine coolants permitted will be water or water mixed with ethyl alcohol.
b. Protective meshes may be added in front of the oil and/or water radiator(s).
c. **The cooling system hoses and catch tanks may be changed.**
d. Radiator fan and wiring may be removed. Thermal switches, water temperature sensor and thermostat may be removed inside the cooling system.
e. Radiator cap is free.
f. Additional radiators and oil coolers are permitted, including the necessary connections.
g. The only accepted form is a square, rectangle, triangle or trapezium with flat side faces. The calculated total volume (not the capacity) of the component results from length x width x height exterior dimension and may not exceed 3.500 cm^3.
h. The component must be fixed inside the fairing

4.6.8.16 Air box

a. The air box must remain as originally produced by the manufacturer on the homologated motorcycle but the air box drains must be sealed.
b. The air filter element may be modified or replaced **but must be mounted in the original position**.
c. The air box drains must be sealed.
d. All motorcycles must have a closed breather system. All the oil breather lines must be connected and discharge in the airbox.
e. A catch-tank may be fitted in the engine breather between the cam cover and airbox. The catch tank is solely for the purpose of collecting engine fluids, no other functions (such as pressure modification) are permitted and breather connections may only be directly between the cam cover, catch tank and airbox. The catch tank and connections must be visible for inspection at all times (that is, not permanently built into the chassis or other parts).

4.6.8.17 Fuel supply

a. Fuel pump and fuel pressure regulator must remain as homologated.
b. The fuel pressure must be as homologated.
c. Fuel lines from the fuel tank to the delivery pipe assembly (excluded) may be replaced.

d. Quick connectors or dry break connectors may be used.
e. Fuel vent lines may be replaced.
f. Fuel filters may be added.

4.6.8.18 Exhaust system

a. Exhaust pipes and silencers may be modified or changed. Catalytic converters must be removed.
b. The number of the final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) of the homologated model.
c. For safety reasons, the exposed edges of the exhausts pipe(s) outlet must be rounded to avoid any sharp edges.
d. Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from heat.
e. The noise limit for Superstock 600 be 107 dB/A (with a 3 dB/A tolerance after the race only)

4.6.8.19 Sound level control

4.6.8.19.1Sound limits in force:
Noise will be controlled at : Max. 107 dB/A measured at a mean piston speed of 11 m/sec.

4.6.8.19.2 Noise control
Due to the similarity of the piston stroke in different engine configurations within the capacity classes, the noise test will be conducted at a fixed RPM. For reference only, the mean piston speed at which the noise test is conducted is calculated at 11 m/sec.

	2 Cylinders	**3 Cylinders**	**4 Cylinders**
600 c.c.	5.500 RPM	6.500 RPM	7.000 RPM
To 750 c.c.	5.500 RPM	6.000 RPM	7.000 RPM

4.6.8.19.3 Noise control after the competition
In a competition which requires a final examination of machines before the results are announced, this examination **CAN** include a noise control measurement of at least the first three machines listed in the final classification. At this final test, there will be a 3 dB/A tolerance.

4.6.9 Electrics and Electronics

4.6.9.1 Ignition / Engine Control System (ECU)

a. The engine control system (ECU) must be either:
   i. The original system as homologated, with a change of software being allowed.
   ii. The original system (with the production ECU) (option i) may have external ignition and/or injection module/s added. The total combined retail price (software and tuning tools included) on sale to the general public **cannot be higher than €3000 (VAT excluded**). A special connector may be used to connect the module/s and the ECU.
   iii. An approved ''Superstock Kit'' model (produced and/or approved by the motorcycle manufacturer) may be used. A special connector/adaptor may be used to connect the ECU(s) and the original wiring harness. The combined retail price of the full system including software, tuning tool, download / connection cable any activations, upgrades and wiring harness(s) must be less than:
      1. **€3000 (VAT excluded) if the system excludes data logging**
      2. **€3750 (VAT excluded) if the system includes data logging.**

      The ECU (with software and activations) and harness parts must be individually priced and available separately. The separate ECU and harness total must respect the above limits.

b. Central unit (ECU) may be relocated.
c. Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for approved electronics/data loggers.
d. During an event the FIM CEV Technical Director has the right to ask a team to substitute their ECU or external module with the sample received from the Manufacturer. The change has to be done before Sunday warm up.
e. The data logging system is free.
f. The addition of a device for infrared (IR) transmission of a signal between the racing rider and his team, used exclusively for lap timing.
g. The addition of a GPS unit for lap timing/scoring purposes is allowed.
h. Telemetry is not allowed.
i. Harness:
   a. The main wiring harness may be replaced by the kit wire harness as supplied for the Kit ECU model, produced and/or approved by the manufacturer of the motorcycle.
   b. The Kit wiring harness may incorporate the data logging harness.
   c. The key/ignition lock may be relocated, replaced or removed.
   d. Cutting of the original main wiring harness is allowed.
j. The original speedometer and tachometer may be altered or replaced (see also 2.6.11).
k. Spark plugs may be replaced.

l. **Battery is free.**

4.6.9.2 Generator, alternator, electric starter

a. No modifications are allowed.
b. The electric starter must operate normally and always be able to start the engine during the event.

4.6.10 Main frame

During the entire duration of the event, each rider can only use one (1) complete motorcycle, as presented for Technical Control, with the frame clearly identified with a seal. In case the frame will need to be replaced the rider or the team can request the use of a spare frame to the FIM CEV Technical Director.

The pre-assembled spare part frame must be presented to the FIM CEV Technical Director for the permission of rebuilding. The pre-assembly shall be strictly limited to:

- Main frame
- Bearings (steering pipe, swing arm , etc)
- Swing arm
- Rear suspension linkage and shock absorber
- Upper and lower clamps (triple clamp, fork bridges)
- Wiring harness

The spare frame will not be allowed in the pit box before the rider or the team has received authorization from the FIM CEV Technical Director.

The rebuilt motorcycle must be inspected before its use by the technical stewards for safety checks and a new seal will be placed on the motorcycle frame.

4.6.10.1 Frame body and Rear sub frame

a. The frame must remain as originally produced by the manufacturer for the homologated motorcycle.
b. Holes may be drilled on the frame only to fix approved components (i.e. fairing brackets, steering damper mount, sensors).
c. The sides of the frame-body may be covered by a protective part made of a composite material. These protectors must fit the form of the frame, but they must leave and empty place to add the technical control sticker close to the right side of the pivot frame.

d. Nothing else may be added or removed from the frame body.
e. All motorcycles must display a vehicle identification number punched on the frame body (chassis number).
f. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
g. Front sub frame / fairing mount may be changed or altered.
h. Rear sub frame may be changed or altered, but the type of material must remain as homologated, or **material** of a higher specific weight.
i. Additional seat brackets may be added, non-stressed protruding brackets may be removed if they do not affect the safety of the construction or assembly. Bolt-on accessories to the rear sub-frame may be removed.
j. The paint scheme is not restricted but polishing the frame body or sub frame is not allowed

4.6.10.2 Front Forks

a. Forks (stanchions, stem, wheel spindle, upper and lower crown, etc.) must remain as originally produced by the manufacturer for the homologated motorcycle.
b. The upper and lower fork clamps (triple clamp, fork bridges) must remain as originally produced by the manufacturer on the homologated motorcycle.
c. Steering stem pivot position must remain in the homologated position (as supplied on the production bike). If the standard bike has inserts then the orientation/position of the original insert may be changed but the insert cannot be replaced or modified.
d. A steering damper may be added or replaced with an after-market damper.
e. The steering damper cannot act as a steering lock limiting device.
f. Fork caps on the mechanical forks may only be modified or replaced to allow external adjustment. (This does not include the mechanical fork leg that is part of the homologated electronic fork set)
g. Dust seals may be modified, changed or removed if the fork remains totally oil-sealed
h. **Mechanical forks:** Original internal parts of the homologated forks may be modified or changed. After market damper kits or valves may be installed. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.
i. Electronic forks: No aftermarket or prototype electronically-controlled suspension parts may be used. Electronic suspension may be used if such suspension is already present on the production model of the homologated motorcycle, and it must remain completely standard (all mechanical and electronic parts must remain as homologated) with the exception of shims and springs. The original suspension system must work safely in the event of an electronic failure. The electronic front

suspension may be replaced with a mechanical system from a similar homologated model from the same manufacturer.

j. **Electronic forks may have their complete internal parts (including all electronic control) replaced with a conventional damping system and it will be considered as a mechanical fork.**

4.6.10.3 Rear fork (Swing arm)

a. The rear fork must remain as originally produced by the manufacturer for the homologated motorcycle.
b. Rear fork pivot bolt must remain as originally produced by the manufacturer for the homologated motorcycle.
c. **Rear swingarm pivot position must remain in the homologated position (as supplied on the production bike). If the standard bike has inserts then the orientation/position of the original insert may be changed but the insert cannot be replaced or modified.**
d. A chain guard must be fitted in such a way to reduce the possibility that any part of the riders' body may become trapped between the lower chain run and the rear wheel sprocket.
e. Rear wheel stand brackets may be added to the rear fork by welding or by bolts. Brackets must have rounded edges (with a large radius). Fastening screws must be recessed. An anchorage system or point(s) to keep the original rear brake calliper in place may be added to the rear swing-arm.

4.6.10.4 Rear suspension unit

a. Rear suspension unit (shock absorber) may be modified or replaced, but the original attachments to the frame and rear fork (swing arm) must be as homologated.
b. All the rear suspension linkage parts must remain as originally produced by the manufacturer for the homologated motorcycle.
c. **Mechanical suspension:** Rear suspension unit and spring may be changed.
d. **Electronic suspension:** No aftermarket or prototype electronically-controlled suspension parts may be used. Electronic suspension may be used if such suspension is already present on the production model of the homologated motorcycle, and it must remain completely standard (all mechanical and electronic parts must remain as homologated) with the exception of shims and springs). The original suspension system must work properly safely in the event of an electronic failure. The electronic shock absorber can be replaced with a mechanical one.

4.6.10.5 Wheels

a. Wheels must remain as originally produced by the manufacturer for the homologated motorcycle.

b. A non-slip coating / treatment may be applied to the bead area of the rim.
c. If the original design includes a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.
d. Wheel axles must remain as homologated, wheel spacers may be modified or replaced.
e. Wheel balance weights may be discarded, changed or added to.
f. Any valves may be used.

4.6.10.6 Brakes

a. Brake discs may be replaced by aftermarket discs which comply with following requirements:
    i. Brake discs must retain the same material as the homologated disc.
    ii. The outside diameter of the brake disc may be increased but the disc must fit into the homologated brake calliper without any modification.
    iii. The thickness of the brake disc may be increased but the disc must fit into the homologated brake calliper without any modification. The number of floaters is free.
    iv. The fixing of the carrier on the wheel must remain the same as on the homologated disc.
b. The front and rear brake calliper (mount, carrier, hanger) must remain as originally produced by the manufacturer for the homologated motorcycle.
c. In order to reduce the transfer of heat to the hydraulic fluid it is permitted to add metallic shims to the callipers, between the pads and the callipers, and/or to replace light alloy pistons with steel pistons made by the same manufacturer of the calliper.
d. The rear brake calliper bracket may be mounted fixed on the swing-arm, but the bracket must maintain the same mounting (fixing) points for the calliper as used on the homologated motorcycle.
e. The swing-arm may be modified for this reason to aid the location of the rear brake calliper bracket, by welding, drilling or by using a helicoil.
f. The front and rear master cylinder must remain as originally produced by the manufacturer for the homologated motorcycle. Front and rear brake fluid reservoirs may be changed with aftermarket products.
g. Front and rear hydraulic brake lines may be changed.
h. The split of the front brake lines for both front brake callipers must be made above the lower fork bridge (lower triple clamp).
i. "Quick" (or "dry-brake") connectors in the brake lines are allowed.
j. Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.
k. Additional air scoops or ducts are not allowed.

l. The Antilock Brake System (ABS) may be used only if installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated, brake discs and master cylinder levers excluded), and only the software of the ABS may be modified.
m. The Antilock Brake system (ABS) can be disconnected and its ECU can be dismantled. The ABS rotor wheel can be deleted, modified or replaced.
n. Motorcycles can be equipped with brake lever protection, intended to protect the handlebar brake lever from being accidentally activated in case of collision with another motorcycle.
o. The FIM CEV Technical Director has the right to refuse any guard not satisfying this safety purpose.

4.6.10.7 Handle Bars and Hand Controls

a. Handlebars may be replaced.
b. Handlebars and hand controls may be relocated.
c. Throttle controls must be self closing when not held by the hand.
d. Throttle assembly and associated cables may be modified or replaced but the connection to the throttle body and to the throttle controls must remain as on the homologated motorcycle.
e. Clutch and brake lever may be replaced with an after-market model. An adjuster to the brake lever is allowed.
f. Switches may be changed but the electric starter switch and engine stop switch must be located on the handlebars.
g. Motorcycles must be equipped with a functional ignition kill switch or button mounted **on the right hand** handlebar **(within reach of the hand while on the hand grips)** that is capable of stopping a running engine. **The button or switch must be RED.**

4.6.10.8 Foot rest / Foot controls

a. Foot rest/foot controls may be relocated but brackets must be mounted to the frame in the original mounting points.
b. Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.
c. The end of the foot rest must have at least an 8 mm solid spherical radius.
d. Non folding footrests must have an end (plug) which is permanently fixed, made of aluminium, plastic, Teflon® or an equivalent type material (minimum radius 8mm). The plug surface must be designed to reach the widest possible area. The FIM CEV Technical Director has the right to refuse any plug not satisfying this safety aim.

4.6.10.9 Fuel tank

a. Fuel tank must remain as originally produced by the manufacturer for the homologated motorcycle.
b. All fuel tanks must be completely filled with fire retardant material (open-celled mesh, i.e. Explosafe®).
c. Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250cc made of a suitable material.
d. Fuel cap must be changed for a “screw type” cap to prevent accidental opening at any time. Fuel cap when closed must be leak proof.
e. The sides of the fuel tank may be protected with a cover made of a composite material. These covers must fit the shape of the fuel tank.

4.6.10.10 Fairing / Body work

a. Fairing and bodywork may be replaced with exact cosmetic duplicates of the original parts, but must appear to be as originally produced by the manufacturer for the homologated motorcycle, with slight differences due to the racing use (different pieces mix, fixing points, fairing bottom, etc). The material may be changed. The use of carbon fibre or carbon composite materials is not allowed. Specific reinforcements in Kevlar® or carbon are allowed locally around holes and stressed areas.
b. Overall size and dimensions must be the same as the original part.
c. Wind screen may be replaced with an aftermarket product. The height of the windscreen is free, within a tolerance of +/- 15 mm referred to the vertical distance from/to the upper fork bridge. The screen must conform to the same profile from the front as the original. From a top view the length of the windscreen may be shortened by 25mm to allow clearance for the rider. The edge of the screen must have no sharp edges
d. Motorcycles that are not originally equipped with streamlining are not allowed to add streamlining in any form, with the exception of a lower fairing device, as described in point (g). This device cannot exceed above a line drawn horizontally from wheel axle to wheel axle and must follow the specifications described at point (g).
e. The original combination instrument/fairing brackets may be replaced, but the use of titanium and carbon (or similar composite materials) is forbidden. All other fairing brackets may be altered or replaced
f. The original air ducts running between the fairing and the air box may be altered or replaced. Carbon fibre composites and other exotic materials are forbidden. Particle grills or “wire-meshes” originally installed in the openings for the air ducts may be taken away.
g. The lower fairing must to be constructed to hold, in case of an engine breakdown minimum 6 litres. The lower edge of all the openings in the fairing must be positioned at least 70 mm above the bottom of the fairing.

h. The upper edge of the rear transverse wall of the lower fairing must be at least 70 mm above the bottom. The angle between this wall and the floor must be ≤ 90°.
i. Original openings for cooling in the lateral fairing/bodywork sections may be partially closed only to accommodate sponsors' logos/lettering. Such modification shall be made using wire mesh or perforated plate. The material is free but the distance between all opening centres, circle centres and their diameters must be constant. Holes or perforations must have an open area ratio > 60%.
j. The lower fairing must incorporate a single opening of Ø 25 mm diameter in the front lower area. This hole must remain sealed in dry conditions and must be only opened in wet race conditions.
k. Front mudguards may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tyre clearance.
l. Rear mudguard fixed on the swing arm may be modified, changed or removed
m. Motorcycles may be equipped with inner ducts to improve the air stream towards the radiator but the appearance of the front, the rear and the profile of the motorcycle must not be changed.

4.6.10.11 Seat

a. Seat, seat base and associated bodywork may be replaced with parts of similar appearance as originally produced by the manufacturer for the homologated motorcycle. The appearance from front, rear and profile must conform to the homologated shape
b. The top portion of the rear bodywork around the seat may be modified to a solo seat.
c. The homologated seat locking system (with plates, pins, rubber pads etc.) may be removed.

4.6.10.12 Rear Safety Light

All motorcycles must have a functioning red light mounted at the rear of the machine, to be used in rain or low visibility conditions. All lights must comply with the following:

a. Lighting direction must be parallel to the machine centre line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the machine centre line.
b. The rear light must be mounted near the end of the seat/rear bodywork and approximately on the machine centre line, in a position approved by the FIM CVEV Technical Director. In case of dispute over the mounting position or visibility, the decision of the FIM CEV Technical Director will be final.

c. Power output/luminosity equivalent to approximately: 10 – 15 (incandescent) , 0.**6** – 5 W (LED).
d. The output must be continuous - no flashing safety light whilst on track, flashing is allowed in the pit lane when pit limiter is active.
e. Safety light power supply may be separated from the motorcycle.
f. The FIM CEV Technical Director has the right to refuse any light system not satisfying this safety purpose.

4.6.10.13 Fasteners

a. Standard fasteners may be replaced with fasteners of any material and design but titanium fasteners cannot be used. The strength and design must be equal to or exceed the strength of the standard fastener.
b. Fasteners may be drilled for safety wire, but intentional weight-reduction modifications are not allowed.
c. **Thread repair using inserts of different material such as helicoils and timeserts is allowed.**
d. Fairing / bodywork fasteners may be replaced with the quick disconnect type.
e. Aluminium fasteners may only be used in non-structural locations.

4.6.11 The following items MAY be altered or replaced from those fitted to the homologated motorcycle.

a. Any type of lubrication, brake or suspension fluid may be used.
b. Gaskets and gasket materials.
c. Instruments, instrument bracket(s) and associated cables.
d. Painted external surface finishes and decals.
e. Material for brackets connecting non original parts (fairing, exhaust, instruments, etc) to the frame (or engine) cannot be made from titanium or fibre reinforced composites.
f. Protective covers for the frame, chain, footrests, etc. may be made in other materials like fibre composite material if these parts do not replace original parts mounted on the homologated model.

4.6.12 The Following Items MAY BE Removed

a. Emission control items (anti-pollution) in or around the air box and engine (O2 sensors, air injection devices).
b. Tachometer.
c. Speedometer.
d. Chain guard as long as it is not incorporated in the rear fender.
e. Bolt-on accessories on a rear sub frame.

4.6.13 The Following Items MUST BE Removed

a. Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
b. Rear-view mirrors.
c. Horn.
d. License plate bracket.
e. Toolkit.
f. Helmet hooks and luggage carrier hooks
g. Passenger foot rests.
h. Passenger grab rails.
i. Safety bars, centre and side stands must be removed (fixed brackets must remain).

4.6.14 The Following Items MUST BE Altered

a. Motorcycles must be equipped with a functional ignition kill switch or button mounted **on the right hand** handlebar **(within reach of the hand while on the hand grips)** that is capable of stopping a running engine, **the button or switch must be RED.**
b. All drain plugs must be wired. External oil filter(s), screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcases).
c. All motorcycles must have a closed breather system. The oil breather line must be connected and discharge in the airbox.
d. Where breather or overflow pipes are fitted they must discharge via existing outlets. The original closed system must be retained**:** no direct atmospheric emission is permitted.
e. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.